



INTERNATIONAL CIVIL AVIATION ORGANISATION

AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG) METEOROLOGY SUB-GROUP TENTH MEETING (MET/SG/11)

(Nairobi, Kenya, 8 – 10 July 2013)

Agenda Item 3: WAFS and IAVW in the AFI Region

STATUS OF THE IMPLEMENTATION OF THE WAFS AND IAVW IN THE AFI REGION

(Presented by the Secretariat)

SUMMARY

This paper presents the status of implementation in the AFI Region of the WAFS and the IAVW in particular the Satellite Distribution System (SADIS) provided by the United Kingdom as an integral part of the ICAO aeronautical fixed service (AFS) and the International Airways Volcano Watch (IAVW) activities. It describes the follow-up action required in response to conclusions formulated by the SADISOPSG/17 & 18, WAFSOPSG/06 & 08 and IAVWOPSG/06 & 07 Meetings.

References: Reports of SADISOPSG/16 & 17, WAFSOPSG/ 07 and IAVWOPSG/06 & 07

1. Introduction

1.1 The meeting may recall that the Satellite Distribution System for information relating to air navigation (SADIS) provided by the United Kingdom, as an integral part of the ICAO is completely operational and the SADIS broadcasts covers the AFI Region except Cape Verde Islands.

1.2 SADIS provides to the users, at a lower cost standardised and high quality WAFS forecasts in digital form and OPMET data such as METAR, TAF, SIGMET and volcanic ash/tropical cyclone advisories used by operators, the crew members and other aeronautical users.

1.3 The meeting may further recall that, pursuant to MET Divisional Meeting (2002) Recommendation 1/22, the International Airways Volcano Watch operations Group was formed (IAVWOPSG) and replaced the Volcanic Ash Warnings Study Group (VAWSG).

1.4 This paper will review the new developments contained in the SADISOPSG/16 & 17, WAFSOPSG/06 and IAVWOPSG/6 and 7 meeting reports.

2. Discussions

2.1 Status of implementation of SADIS in the AFI Region

2.1.1 Regarding the status of implementation of SADIS in the AFI region, the Sub Group will recall that APIRG/18 formulated Conclusion 18/40 a) requesting States that have not registered for Secure SADIS FTP to do so and Conclusion 18/40 f) requesting States to arrange to migrate from SADIS FTP to Secure

SADIS FTP before 30 November 2012. The Sub Group will be pleased to note the improvement in the number of States that operating SADIS as reflected in **Appendix A** to this paper.

2.2 **SADISOPSG/17 and SADIS /18 Meeting Reports**

2.2.1 The SADISOPSG/17 and SADIS/18 meetings were held in ICAO Regional Office, Cairo and ICAO Regional Office Dakar respectively. The executive summary reports of the meetings are attached as **Appendices B and C** respectively to this working paper.

2.2.2 From the report of the SADISOPSG/18 meeting, the Sub Group will be pleased to note that, as part of Amendment 76 to Annex 3, it is proposed that, on a bilateral basis, the exchange of OPMET information (initially METAR/SPECI, TAF and SIGMET) in geography markup language (GML) be enabled in support of the future system wide information management (SWIM) environment.

2.2.3 Similarly, the Sub group will be pleased to further note that, Concerning the annual questionnaire, the consistently high percentage of users reporting good availability of the OPMET information and the WAFS forecasts on both the SADIS 2G satellite broadcast and the Secure SADIS FTP service. The group will further note that, in view of the forthcoming changes to SADIS service and especially the cessation of forecasts WMO GRIB 1 and availability of forecasts in WMO GRIB 1 code form agreed to a revised content of the annual questionnaire to be used for the dispatch of the 2013/2014 SADIS operational efficacy questionnaire in December 2013.

2.2.4 The SADISOPSG/17 meeting considered matters related to the non-implementation of the requirements for OPMET information on SADIS – more specifically, the lack of availability of METAR/SPECI and TAF form certain aerodromes within States. In this regard, recognizing the importance of the OPMET information for users, and that States are required to provide or have agreed to provide the OPMET information from the AOP aerodromes or non-AOP aerodromes respectively listed in Annex 1 of the SADIS User Guide (SUG), the group concurred that regional OPMET bulletin exchange schemes that exist in all ICAO Regions should be aligned with the OPMET information requirements contained in Annex 1 of the SUG and that States whose OPMET information had been identified as “not available” on SADIS should ensure that the OPMET information is produced as a matter of urgency and disseminated through the regional OPMET bulletin exchange schemes (Conclusion 18/8).

2.2.5 With regards to the requirements for OPMET information (METAR/SPECI and TAF) from non-AOP aerodromes, the SADISOPSG/18 reviewed a revision of the requirements based on a proposal made by IATA. In this regard, the group agreed that States should be consulted accordingly on the new or amended requirements and that States that have notified of their concurrence to provide the OPMET information from non-AOP aerodromes should, as part of the consultation, be requested to provide an indication of the availability of the OPMET information concerned (Conclusion 18/9).

2.2.6 The group noted forthcoming changes to the provision of WAFS forecasts from the world area forecast centres (WAFCs) in line with the applicability of Amendment 76 to Annex 3 on 14 November 2013. Specifically, the cessation of WAFS upper-air gridded global forecasts in WMO GRIB 1 code form (in view of the operational availability of superior forecasts in GRIB 2 code form), the availability of WAFS forecasts in GRIB 2 code form for flight level (FL) 410, and the availability of WAFS forecasts in GRIB2 code form for icing, turbulence, cumulonimbus cloud which can be used operationally with effect Amendment 76. In view of these developments, the group determined the associated implications of the provision of the WAFS forecasts on SADIS 2G satellite broadcast and the Secure SADIS FTP service, including necessary modifications to the Secure SADIS FTP service folder structure (Conclusions 18/12, 18/13, 18/14 and 18/15).

2.2.7 In respect of recommendations concerning the provision of a satellite-based distribution system, having considered a detailed report of the options available and the associated costs and impacts on States/users and taking into account other associated developments including the imminent introduction (as part of Amendment 76 to Annex 3) of the exchange of OPMET information in a digital format, the group agreed to recommend to the Meteorology Divisional Meeting to be held in Montreal in July 2014 that the existing SADIS 2G satellite broadcast should be extended beyond 2015 but only until November 2019 (Conclusion 18/16).

2.3 **Review of the WAFSOPSG/7 meeting report**

2.3.1 The 7th meeting of the WAFSOPSG was held in Lima, Peru from 17 to 21 September, 2012. The executive summary of the report of the meeting is attached as **Appendix D** to this working paper.

2.3.2 The WAFSOPSG/7 meeting agreed that all the formalities regarding the cessation of WAFS gridded global forecasts in WMO GRIB1 code form had been fulfilled and therefore, the endorsed their cessation at 0000 UTC on 14 November 2013 as per Decision 7/9 and Conclusion 7/10. Therefore, users who had not already done so were to have contacted their respective WAFS workstation vendors to ensure their systems were able to receive and decode the WAFS GRIB2 datasets for use in flight planning and documentation. Moreover, States were to have verified that their users of WAFS upper-air grid point forecasts and WAFS workstations were able to receive and decode the WAFS GRIB2 datasets and that flight planning and data retrieval systems had the proper decoder software to process the GRIB2 data, since it was proposed that after November 2013, WAFS upper-air grid point forecasts would only be available in GRIB2 code form. In this regard, the MET/SG urged AFI States to implement Conclusion 18/40 b) as a matter of urgency.

2.3.3 With regard to training requirements, for States and WAFS users, for the new WAFS gridded forecasts for CB clouds, icing and turbulence, the WAFSOPSG/7 meeting, in light of the consideration of examples of visualization options, agreed to proceed with the development of a training package in line with the expected timescale involved with its operational use.

2.3.4 With regard to training requirements, for States and WAFS users, for the new WAFS gridded forecasts for CB clouds, icing and turbulence, the group, in light of the consideration of examples of visualization options, agreed to proceed with the development of a training package in line with the expected timescale involved with its operational use and make it available on the WAFSOPSG website by April 2013 in order to support implementation under Amendment 76 to Annex 3 (Conclusion 7/13).

2.3.5 In view of the successful harmonization of the WAFS gridded global forecasts for CB clouds, icing and turbulence, and the ongoing verification results, as well as the availability of updated guidance material, the group reaffirmed Conclusion 6/18 regarding the removal, as part of Amendment 76 to Annex 3, of Note 1 to Appendix 2, 1.2.2 h) regarding the experimental nature (“trial forecasts”) of the gridded forecasts. Additionally, the group invited the WAFS Providers States, in collaboration with all ICAO PIRGs, IATA and WMO, to extend the verification of WAFS gridded global forecasts of CB clouds, icing and turbulence using more comprehensive datasets for the monitoring of the quality of the products and to publish the CB clouds, icing and turbulence verification results on the WAFS websites (Conclusion 7/14).

2.3.6 Regarding the WAFS support required for the integration of meteorological information within the global ATM operation concept, the group invited ICAO, the WAFS Provider States and selected States and international organizations to coordinate, with the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT), in the development of a concept of operations for the WAFS that takes into consideration functional requirements and performance metrics (Conclusion 7/15).

2.4 **Review of the IAVWOPSG/6 and IAVWOPSG/7 meeting reports**

2.4.1 The IAVWOPSG/6 and IAVWOPSG/7 meetings were held at ICAO Regional Offices, Dakar and Lima in September 2011 and September 2012 respectively. The executive summaries of the reports of the two meetings are attached as **Appendices E and F** to this working paper.

2.4.2 Regarding the development of procedures on how to improve the sharing of information from WMO Member States (such as radar reports, satellite imagery and ground-based measurements) with volcano observatories in an effort to improve collaborative forecasting, the group agreed to invite WMO to support collaborative forecasting through enhanced information sharing (Conclusion 6/12 refers).

2.4.3 Concerning the development of guidance material related to the reporting of complex volcanic ash events (multiple layers and/or more than one eruption within a FIR) in SIGMET, the IAVWOPSG/6 meeting agreed to assess, inter alia, if the volcanic ash advisory/volcanic ash advisories in graphical format (VAA/VAG) could be used to replace the SIGMET for volcanic ash and the capability of the nine VAACs to provide global service in this regard.

2.4.4 Regarding the feasibility of replacing SIGMET for volcanic ash with VAA/VAG, the IAVWOPSG/7 meeting noted that the best way to address this issue would be in the development of the roadmap on how future information to aviation on volcanic hazards are to be provided in a collaborative way between VAACs and States in their area of responsibility, taking into consideration the requirement of integrating meteorological information into ATM.

2.4.5 To support the VAACs, the group invited the World Meteorological Organization (WMO)-International Union of Geodesy and Geophysics (IUGG) Volcanic Ash Scientific Advisory Group (VASAG) to address follow-up work pertaining to training material to support the use of quantitative, satellite-derived, volcanic ash and gas products for operational use by VAACs (Conclusion 7/8 refers).

2.4.6 To support quality management of the meteorological information to be supplied to users, the group agreed with the inclusion, by VAACs, of information on QMS implementation status in the VAAC Management Reports (Conclusion 7/11 refers).

2.4.7 In view of the recent success of the three VAAC best practice seminars, assisted by the generous support of IATA, the group invited ICAO, in coordination with WMO, to consider the best practice seminars as a future mechanism for use by the IAVWOPSG for issues that need to be progressed urgently, particularly where the active involvement of VAAC managers is required (Conclusion 7/14 refers).

2.4.8 The group agreed to develop an IAVW roadmap for the provision of information services in support of the aviation system block upgrade (ASBU) methodology taking advantage of a draft version of a concept of operations for the IAVW (Conclusion 7/17 refers).

2.4.9 To support operational decision making within the framework of IAVW, the group agreed to invite the VASAG, in an effort to improve volcanic ash dispersion forecasts, to further work on reducing dispersion model output uncertainty (Conclusion 7/18 refers).

2.4.10 To assist States during volcanic ash events and to support the implementation of Annex 3 provisions (Amendment 76 to become applicable on 14 November 2013), the group agreed to develop additional guidance material on the use of the volcano observatory notice for aviation (VONA) for inclusion in Doc 9766 (Decision 7/24 refers).

2.4.11 With regard to the development of operational requirements for information on space weather, the group reviewed a draft set of product requirements intended for international air navigation flight planning purposes to provide operators, air navigation service providers and flight crew with a notice that a geomagnetic storm or solar radiation storm event had occurred or was expected to occur that may impact communications, navigation, avionics and pose a hazard to human health, and agreed with its inclusion in draft Amendment 77 to Annex 3 (Conclusion 7/38 refers). Additionally, the group tasked an ad-hoc group to review existing related documentation to ensure that its content supports the proposed amendment to Annex 3 and to provide a final draft document to the Secretary with a view to forming the basis of an ICAO manual supporting potential future provisions on space weather (Conclusion 7/39 refers).

3 Action by the Meeting

3.1 The MET/SG is invited to:

a) Note the information provided in this paper ;

- ✓ **Appendix A- Status of implementation of SADIS in AFI Region**
- ✓ **Appendix B- Executive Summery SADISOPSG/17**
- ✓ **Appendix C- Executive Summery SADISOPSG/18**
- ✓ **Appendix D- Executive Summery WAFSOPSG/7**
- ✓ **Appendix E- Executive Summery IAVWOPSG/6**
- ✓ **Appendix F- Executive summery IAVWOPSG/7**